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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------|------------------|
| 10/623,042  | 07/18/2003  | Ying Wang            | UC0222 US NA          | 6443             |
| 23906   | 7590        | 07/13/2005           | EXAMINER              |                  |
| E I DU PONT DE NEMOURS AND COMPANY<br>LEGAL PATENT RECORDS CENTER<br>BARLEY MILL PLAZA 25/1128<br>4417 LANCASTER PIKE<br>WILMINGTON, DE 19805 |             |                      | YAMNITZKY, MARIE ROSE |                  |
|   |             | ART UNIT             |                       | PAPER NUMBER     |
|   |             | 1774                 |                       |                  |
| DATE MAILED: 07/13/2005   |             |                      |                       |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|------------------------------|------------------------|---------------------|--|
|                              | 10/623,042             | WANG, YING          |  |
| Examiner                     | Art Unit               |                     |  |
| Marie R. Yamnitzky           | 1774                   |                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 17 June 2005.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 17 and 18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 17 and 18 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date rec'd 11 Dec 2003 and 10 Dec 2004

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

1. This Office action is in response to applicant's amendment and election without traverse filed June 17, 2005. Applicant's amendment cancels claims 1-16 and 19-22, and amends claims 17 and 18.

Claims 17 and 18 are pending.

Applicant's election without traverse of the invention of Group II in the reply filed on June 17, 2005 is acknowledged. Claims 17 and 18 read on the elected invention.

2. The disclosure is objected to because of the following informalities:

There is no brief description of Figures 6A, 6B and 6C.

Appropriate correction is required.

3. Claims 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitations imposed by the requirement that at least one charge transport material or anti-quenching material be selected based on degree of luminescence quenching as determined by steps (a)-(d) are indefinite. There are numerous luminescent materials, and the claims are not limited to any specific luminescent materials. There are numerous charge transport and/or anti-quenching materials, and the claims are not limited to any specific charge transport and/or anti-quenching materials. The degree of luminescence quenching exhibited by a first combination of specific charge transport and/or anti-quenching material and specific luminescent material will

not necessarily be the same as the degree of luminescence quenching exhibited by a second (different) combination of specific charge transport and/or anti-quenching material and specific luminescent material.

The limitations are also indefinite because step (d) is subjective. The structure and composition of the claimed device is not limited beyond the requirement for at least one charge transport and/or anti-quenching material. What is “appropriate” for an electronic device used for a specific first purpose, is not necessarily “appropriate” for an electronic device used for a specific second (different) purpose. Also, different people may have different standards as to what is considered “appropriate” for an electronic device used for a specific purpose.

The limitations imposed by the Stern-Volmer constant recited in claim 18 are indefinite because the Stern-Volmer constant is not a constant with respect to a particular charge transport and/or anti-quenching material, per se. A particular charge transport and/or anti-quenching material may have a Stern-Volmer constant less than 500 with respect to one luminescent material while having a Stern-Volmer constant greater than 500 with respect to another luminescent material.

Claim 17, lines 4 and 14: The phrases “the method of comprising” and “electronic device of said charge transport and/or anti-quenching material” are grammatically confusing.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Petrov et al. (WO 02/02714 A2).

Petrov et al. disclose an organic electronic device comprising one or more charge transport materials. Various hole transport materials are taught in the last full paragraph on page 13, and various electron transport materials are taught in the paragraph bridging pages 13 and 14. Petrov et al. also teach that the layer comprising the electron transport material preferably reduces quenching (p. 14, l. 5-6).

Petrov et al. do not teach selecting at least one charge transport material based on degree of luminescence quenching as determined by present steps (a)-(d), but the method by which the charge transport and/or anti-quenching material is selected places no positive limitations on the material or the device. Since Petrov et al. teach that these charge transport materials are suitable for use in an electronic device comprising a luminescent material, any degree of luminescence quenching exhibited by these charge transport materials is apparently “appropriate” for Petrov’s electronic device.

Further, the devices of the Comparative Sample and Samples 1-22 utilize MPMP for the hole transport layer. MPMP has a Stern-Volmer luminescence quenching constant of 1.6 as

determined with the luminescent material identified as "Emitter 1" in the present specification. Accordingly, the prior art devices meet the limitations of present claim 18.

The examiner notes that the present claims do not require the claimed device to comprise the luminescent material used to determine degree of luminescence quenching of the charge transport and/or anti-quenching material. Even if the claims were so limited, Petrov et al. would anticipate the device of the present claims because the devices of Petrov's Samples 1, 2, 14 and 15 utilize MPMP as the hole transport material and Compound 1-b as the luminescent material. Compound 1-b is the same as Emitter 1 of the present application.

6. Claims 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Forrest et al. (US 6,310,360 B1).

Forrest et al. disclose an organic electronic device comprising at least one charge transporting and/or anti-quenching material. As taught, for example, at column 7, line 63-c. 8, l. 52, the device may comprise a blocking layer made of an electron-transporting material that does not quench triplets (a type of luminescence) and/or may comprise a blocking layer made of a hole-transporting material that does not quench triplets.

Forrest's device of Example 1 comprises a hole transport layer made of TPD, a luminescent layer comprising CBP, a blocking layer made of BCP and an electron transport layer made of Alq<sub>3</sub>. TPD, CBP, BCP and Alq<sub>3</sub> are all charge transport materials. Based on the data set forth in the present specification, TPD and CBP are both capable of exhibiting a Stern-Volmer luminescence quenching constant less than 500. Since BCP is used for the blocking

layer, and Forrest et al. teach the use of a material that does not quench triplets for the blocking layer, it is the examiner's position that it is also reasonable to expect that BCP is capable of exhibiting a Stern-Volmer luminescence quenching constant less than 500.

7. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Friend et al. (US 5,698,048).

Friend et al. disclose an organic electronic device comprising Pt-poly-yne and C<sub>60</sub>. C<sub>60</sub> is a charge transport material that quenches (at least partially) the luminescence of Pt-poly-yne. For example, see column 4, line 65-c. 6, l. 47. Based on Friend's teachings, it is apparent that the degree of luminescence quenching exhibited by C<sub>60</sub> is "appropriate" for Friend's electronic device.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Samuel et al. (US 6,313,261 B1) and Lecloux et al. (US 2004/0066135 A1) also disclose organic electronic devices comprising at least one charge transport/anti-quenching material. For example, see column 6, lines 18-26 in the '261 patent, and see the abstract of the '135 publication.

Note that since the at least one charge transport and/or anti-quenching material required by the present claims can be selected from numerous known materials, virtually any prior art document disclosing a working example of a functional organic electronic device comprising at

Art Unit: 1774

least one charge transport and/or anti-quenching material anticipates the device of at least present claim 17.

9. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
July 08, 2005

*Marie R. Yamnitzky*

MARIE YAMNITZKY  
PRIMARY EXAMINER

*1774*